

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) An optical functional device comprising:
a first port,
a second port,
a third port,
a fourth port,
a first splitter branching said first port to a first arm and a second arm,
a second splitter branching said second port to said first arm and said second arm,
a third splitter branching said first arm to said third port,
a fourth splitter branching said first arm to said fourth port,
a first semiconductor optical amplifier disposed between said third and fourth splitters, on said first arm,
a second semiconductor optical amplifier disposed between said first and second splitters, on said second arm, and
a phase control element disposed between said second and fourth splitters,
wherein said fourth splitter is disposed between said first semiconductor optical amplifier and said phase control element.

2. (Original) The optical functional device according to claim 1, said optical functional device being employed as a wavelength converter.

3. (Currently Amended) An optical functional device comprising:
a first port,
a second port,

a third port,
a fourth port,
a first splitter branching said first port to a first arm and a second arm,
a second splitter branching said second port to said first arm and said second arm,
a third splitter branching said first arm to said third port,
a fourth splitter branching said first arm to said fourth port,
a first semiconductor optical amplifier disposed between said third and fourth splitters on said first arm,
a second semiconductor optical amplifier disposed between said first and second splitters on said second arm,
a first phase control element disposed between said second and fourth splitters,
wherein said fourth splitter is disposed between said first semiconductor optical amplifier and said first phase control element, and
a second phase control element disposed between said second semiconductor optical amplifier and said second splitter on said second arm.

4. (Original) The optical functional device according to claim 3, said optical functional device being employed as a wavelength converter.

Claim 5 (Cancelled).